
4. Friendly

Program Name: Friendly.java

Input File: friendly.dat

You and your friends have decided to come up with an encryption method to encrypt text messages that are sent within the group of friends. After a vote the name of the algorithm was decided to be “Friendly” and will be specifically made to encrypt messages of the form “HH:MM:SS <text>” where HH:MM:SS is the time the message was sent in 24 hour format (with leading 0’s whenever a value is below 10) and text is a series of ASCII characters.

The algorithm will work by using 2 bytes (they will be A and B for the purposes of the explanation) which will be XOR’d with the text to encrypt. The timestamp before the text will not be encrypted and be preserved in the resulting string. The algorithm is as follows:

- 1) Initialize A to equal 9 times the value of the hour from the timestamp.
- 2) Initialize B to equal 3 times the value of the minutes from the timestamp plus the number of seconds from the timestamp.
- 3) For each ASCII character in the text portion you will create a new character by XOR’ing the ASCII character with A for even locations in the string and B for odd locations. The first character of the text is location 0.

Input

The input file will contain an unknown number of lines, with one message to encrypt per line.

Output

For each message, you will print the timestamp followed by one space and the encrypted text. The encrypted text will be printed as a space delimited series of hexadecimal numbers representing the byte value of each encrypted ASCII character in the text.

Example Input File

```
01:23:45 Computer science is awesome!  
10:11:59 I like ICE CREAM.
```

Example Output to Screen

```
01:23:45 0x4A 0x1D 0x64 0x02 0x7C 0x06 0x6C 0x00 0x29 0x01 0x6A 0x1B 0x6C  
0x1C 0x6A 0x17 0x29 0x1B 0x7A 0x52 0x68 0x05 0x6C 0x01 0x66 0x1F 0x6C 0x53  
10:11:59 0x13 0x7C 0x36 0x35 0x31 0x39 0x7A 0x15 0x19 0x19 0x7A 0x1F 0x08  
0x19 0x1B 0x11 0x74
```

Note: Both of the output lines in the printed version above stretch across two lines, but are both actually only one line in the actual output. Alternate output lines are bolded for ease of reading. A space at the end of each line is optional.